

Title

Reconstruction of $K^{*\pm}(892)$ in Au+Au Collisions at 200 GeV

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Abstract

The Relativistic Heavy Ion Collider (RHIC) produces a hot, dense and deconfined Quantum ChromoDynamics (QCD) medium, called the quark-gluon plasma (QGP), with Au+Au collisions at $\sqrt{s_{NN}} = 200$ GeV. The $K^{*\pm}(892)$ resonance is a short-lived particle with a life-time shorter than the expected life-time of the QGP. The decay of the K^* and its properties may provide an effective tool to probe the QGP evolution. Experimentally, $K^{*\pm}$ is not a well-studied particle at STAR previously, because of large combinatorial background. In recent years, improvements in data sample statistics and particle identification capability promise better $K^{*\pm}$ measurements.

In this presentation, we report the reconstruction of $K^{*\pm}$ resonance via the hadronic decay channel $K^{*\pm}(892) \rightarrow K_S^0 \pi^\pm$ as a function of transverse momentum (p_T) up to 5 GeV/c for various collision centrality classes. The data are Au+Au collisions at 200 GeV collected in the Run 2011 from the STAR experiment. Physics implications of our measurements will also be discussed.